1. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-7 + 4i)(10 + 3i)$$

A. $a \in [-86, -81]$ and $b \in [19, 20]$

B. $a \in [-61, -57]$ and $b \in [-65, -58]$

C. $a \in [-86, -81]$ and $b \in [-19, -15]$

D. $a \in [-71, -69]$ and $b \in [11, 16]$

E. $a \in [-61, -57]$ and $b \in [56, 65]$

---

2. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-45 + 66i}{-3 - 8i}$$

A. $a \in [-6, -4.5]$ and $b \in [-7.9, -7.2]$

B. $a \in [-394, -390.5]$ and $b \in [-7.9, -7.2]$

C. $a \in [8, 9.5]$ and $b \in [2, 2.55]$

D. $a \in [13.5, 17]$ and $b \in [-8.6, -7.9]$

E. $a \in [-6, -4.5]$ and $b \in [-558.05, -557.25]$

---

3. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{25921}{529}}$$

A. Whole

B. Not a Real number

C. Rational

D. Irrational

E. Integer

---

4. Simplify the expression below and choose the interval the simplification is contained within.

$$9 - 1 \div 8 * 2 - (4 * 6)$$

A. $[-15.72, -15.08]$

B. $[28.19, 28.67]$

C. $[32.92, 32.95]$

D. $[-15.17, -14.51]$

E. None of the above

---

5. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{50625}{625}}$$

A. Rational

B. Whole

C. Integer

D. Not a Real number

E. Irrational

---

6. Simplify the expression below and choose the interval the simplification is contained within.

$$17 - 13^2 + 9 \div 8 * 20 \div 15$$

A. $[-151.9, -148.6]$

B. $[-153.6, -151.4]$

C. $[185.5, 187.3]$

D. $[186.3, 188.4]$

E. None of the above

---

7. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-2 - 6i)(-10 + 5i)$$

A. $a \in [50, 52]$ and $b \in [50, 51]$

B. $a \in [-15, -6]$ and $b \in [-72, -63]$

C. $a \in [-15, -6]$ and $b \in [67, 73]$

D. $a \in [19, 21]$ and $b \in [-37, -23]$

E. $a \in [50, 52]$ and $b \in [-51, -49]$

---

8. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{0}{7}} + \sqrt{3}i$$

A. Pure Imaginary

B. Not a Complex Number

C. Nonreal Complex

D. Rational

E. Irrational

---

9. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-45 + 88i}{4 - 6i}$$

A. $a \in [-14, -13]$ and $b \in [81, 82.5]$

B. $a \in [5, 7]$ and $b \in [11.5, 13]$

C. $a \in [-708.5, -707.5]$ and $b \in [0.5, 2.5]$

D. $a \in [-11.5, -9.5]$ and $b \in [-15.5, -14]$

E. $a \in [-14, -13]$ and $b \in [0.5, 2.5]$

---

10. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{169}{0}} + \sqrt{221}i$$

A. Rational

B. Irrational

C. Not a Complex Number

D. Pure Imaginary

E. Nonreal Complex

---

11. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(10 - 3i)(8 - 9i)$$

A. $a \in [103, 114]$ and $b \in [-71, -59]$

B. $a \in [75, 82]$ and $b \in [22, 30]$

C. $a \in [103, 114]$ and $b \in [66, 68]$

D. $a \in [50, 58]$ and $b \in [-115, -111]$

E. $a \in [50, 58]$ and $b \in [114, 116]$

---

12. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{54 - 22i}{5 + 4i}$$

A. $a \in [10.5, 11]$ and $b \in [-6, -5]$

B. $a \in [4, 5]$ and $b \in [-9, -7]$

C. $a \in [4, 5]$ and $b \in [-327, -325.5]$

D. $a \in [181, 183]$ and $b \in [-9, -7]$

E. $a \in [8, 10]$ and $b \in [1.5, 3.5]$

---

13. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{484}{169}}$$

A. Not a Real number

B. Rational

C. Integer

D. Irrational

E. Whole

---

14. Simplify the expression below and choose the interval the simplification is contained within.

$$9 - 2^2 + 10 \div 8 * 14 \div 20$$

A. $[12.54, 13.05]$

B. $[13.09, 14.05]$

C. $[5.54, 5.99]$

D. $[4.75, 5.51]$

E. None of the above

---

15. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{144}{625}}$$

A. Integer

B. Irrational

C. Not a Real number

D. Whole

E. Rational

---

16. Simplify the expression below and choose the interval the simplification is contained within.

$$2 - 10^2 + 12 \div 18 * 16 \div 9$$

A. $[101.69, 103.16]$

B. $[102.58, 103.51]$

C. $[-98.17, -97.88]$

D. $[-97.84, -95.36]$

E. None of the above

---

17. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-2 + 6i)(-3 - 4i)$$

A. $a \in [-18, -17]$ and $b \in [-27.7, -25.5]$

B. $a \in [30, 38]$ and $b \in [-11.3, -7.5]$

C. $a \in [30, 38]$ and $b \in [8.5, 13.4]$

D. $a \in [-18, -17]$ and $b \in [24.7, 27.8]$

E. $a \in [6, 9]$ and $b \in [-25.9, -21.2]$

18. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{1820}{10}} + 10i^2$$

A. Irrational

B. Pure Imaginary

C. Rational

D. Nonreal Complex

E. Not a Complex Number

19. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{45 + 44i}{-6 + 8i}$$

A. $a \in [-6.5, -4.5]$ and $b \in [-1, 1.5]$

B. $a \in [-8, -7]$ and $b \in [4.5, 6.5]$

C. $a \in [81.5, 83]$ and $b \in [-7, -5.5]$

D. $a \in [-1, 1.5]$ and $b \in [-7, -5.5]$

E. $a \in [-1, 1.5]$ and $b \in [-625.5, -622.5]$

20. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{36}{0}} + \sqrt{238}i$$

A. Nonreal Complex

B. Rational

C. Irrational

D. Not a Complex Number

E. Pure Imaginary

---

21. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(6 - 10i)(8 + 2i)$$

A. $a \in [67, 73]$ and $b \in [68, 74]$

B. $a \in [67, 73]$ and $b \in [-69, -62]$

C. $a \in [26, 32]$ and $b \in [-95, -86]$

D. $a \in [48, 51]$ and $b \in [-21, -19]$

E. $a \in [26, 32]$ and $b \in [89, 94]$

---

22. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-9 - 33i}{4 + 6i}$$

A. $a \in [-234.5, -233]$ and $b \in [-2, 0]$

B. $a \in [2, 4]$ and $b \in [-4, -2.5]$

C. $a \in [-5, -4]$ and $b \in [-79, -77]$

D. $a \in [-5, -4]$ and $b \in [-2, 0]$

E. $a \in [-2.5, -2]$ and $b \in [-7, -4]$

---

23. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{361}{196}}$$

A. Rational

B. Not a Real number

C. Whole

D. Irrational

E. Integer

---

24. Simplify the expression below and choose the interval the simplification is contained within.

$$16 - 14^2 + 3 \div 10 * 20 \div 8$$

A. $[-179.98, -179.06]$

B. $[211.55, 212.23]$

C. $[-180.46, -179.51]$

D. $[212.7, 213.41]$

E. None of the above

---

25. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{49}{529}}$$

A. Rational

B. Integer

C. Irrational

D. Not a Real number

E. Whole

---

26. Simplify the expression below and choose the interval the simplification is contained within.

$$9 - 14^2 + 4 \div 16 * 15 \div 1$$

A. $[203.8, 205.3]$

B. $[205.2, 211.4]$

C. $[-185.1, -182.9]$

D. $[-188, -183.7]$

E. None of the above

---

27. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-2 - 8i)(6 + 7i)$$

A. $a \in [-12, -5]$ and $b \in [-58, -55]$

B. $a \in [-70, -65]$ and $b \in [27, 40]$

C. $a \in [39, 48]$ and $b \in [-63, -61]$

D. $a \in [-70, -65]$ and $b \in [-36, -27]$

E. $a \in [39, 48]$ and $b \in [59, 63]$

---

28. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$-\sqrt{\frac{660}{6}} + 5i^2$$

A. Nonreal Complex

B. Irrational

C. Pure Imaginary

D. Not a Complex Number

E. Rational

---

29. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{72 - 55i}{-1 - 2i}$$

A. $a \in [37.5, 39]$ and $b \in [39.5, 40.5]$

B. $a \in [6.5, 8]$ and $b \in [198.5, 199.5]$

C. $a \in [6.5, 8]$ and $b \in [39.5, 40.5]$

D. $a \in [-72.5, -70.5]$ and $b \in [27, 28.5]$

E. $a \in [-37, -35]$ and $b \in [-19, -17]$

---

30. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{11}{5} + \sqrt{132}i$$

A. Irrational

B. Rational

C. Pure Imaginary

D. Nonreal Complex

E. Not a Complex Number
